This post Includes everything you will need to know for the Cogscreen-AE. I wrote this because I failed the first time and wished I had known more before I took It. Over the past few months,I have helped 90+ pilots prepare for the Cogscreen-AE. I have checked back on pilots from GA to ATP,and hear nothing but success stories on how my sub has helped them. Taking the Cogscreen-AE is much easier if you know what to expect. The subtasks are pretty quick. Some can be as short as 20 seconds,while others can be as long as 300 seconds. But the whole battery takes around 45 minutes. The explanations are OK at best,but can definitely leave pilots confused about what they need to do for that subtask. The Cogscreen-AE is very time sensitive. You NEED to be as quick as humanly possible without making mistakes. But you also NEED to be as accurate as you can without making mistakes. Alot of people including myself,Stressed about the Cogscreen-AE,and I can see why. For one,If you are seeking a special issuance medical,SSRI,have HIV,or have any history of substance abuse,you may have to take it. If you don't end up passing,It could be a lot more hoops for you to jump through.That being said,as long as you don't have any cognitive defects,and you know what to expect,there is no reason that you should fail. ANYWAYS,here is what you NEED to know…

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1. Backward Digit Span (BDS). For the BDS test the respondent is presented from 3 to 6 digits, one-at-a-time, and then is instructed to enter the sequence in reverse order. For the respondent to advance to a longer sequence they must correctly complete one of the two sequences at the prior sequence level. Performance measures include accuracy (BDS Accuracy; BDSACC), the total number of correct sequences (BDSTOTAL), and the longest correct span (BDSMSPAN). Mental functions addressed by this test include visual attention and working memory.

Here is a link where you can practace this subtask...
https://www.memorylosstest.com/digit-span/

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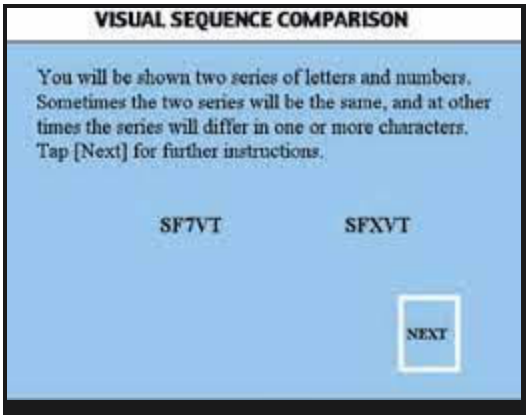
2. Visual Sequence Comparison (VSC) VSC simultaneously presents the respondent with two alphanumeric strings, one on the right and the other on the left half of the screen. The respondent selects [SAME] or [DIFFERENT] for each pair, indicating whether the same characters are presented in the same order for both sequences. The strings vary in length from four to eight items. For each pair, the strings may differ by one or two items. Half of the 20 sequence pairs present the same sequence, and half present a different sequence. Performance measures include the speed (VSC Speed; VSCRTC) and accuracy (VSC Accuracy; VSCACC) of responses, and the number of problems correctly completed per minute (VSC Thruput; VSCPUT). Mental functions addressed by this test include visual attention, working memory, verbal-sequential processing, and visual-perceptual speed.
This is what it looks like...


VISUAL SEQUENCE COMPARISON
You will be shown two series of letters and numbers. Sometimes the two series will be the same, and at other times the series will differ in one or more characters. Tap [Next] for further instructions.
SF7VT
SFXVT
NEXT

Here is a link where you can practace this subtask...(You will need to request it.)
https://docs.google.com/presentation/d/1NYPhvnwot82EmTGWBIShz-rIp_V-CN7b8mhTc-5Zaio/edit#slide=id.p

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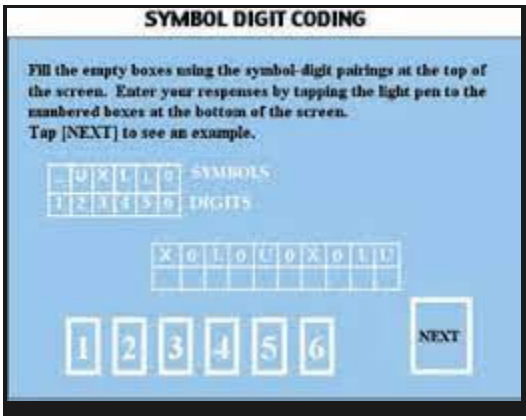
3. Symbol Digit Coding (SDC) SDC is a computer analogue of the conventional symbol-substitution task found in the WAIS-R Digit Symbol subtest (Wechsler, 1981) and the Symbol Digit Modalities Test. Nine symbol-digit pairs are displayed continuously throughout the test near the top of the 6 screen. The respondent is instructed to remember the symbol-digit pairs for a subsequent memory test. In the center of the screen, a line of symbols in random order is presented with blank spaces directly beneath each symbol. The respondent selects the associated digit for each symbol. As each row is completed, a new row appears. Performance measures include response speed (SDC Speed; SDCRTC), response accuracy (SDC Accuracy; SDCACC) the number of items completed correctly per minute (SDC Thruput; SDCPUT). This subtest measures attention, visual scanning, working memory, and speed of information processing.
This is what it looks like...


SYMBOL DIGIT CODING
Fill the empty boxes using the symbol-digit pairings at the top of the screen. Enter your responses by tapping the light pen to the numbered boxes at the bottom of the screen.
Tap [NEXT] to see an example.
SYMBOLS
DIGITS
1 2 3 4 5 6
NEXT

Here is a link where you can practace this subtask...
https://www.millisecond.com/download/library/v6/digitsymbolsubstitutiontask/digitsymbolsubstitutiontask/digitsymbolsubstitutiontask/digitsymbolsubstitution2/digitsymbolsubstitutiontask_test2.web

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4. Matching to Sample Test (MTS) MTS presents a checkerboard (4x4) made up of purple and yellow squares. The checkerboard disappears and is replaced by two similar checkerboards, one of which is identical to the original checkerboard pattern. The respondent presses the lightpen to the checkerboard that is identical to the one previously shown. There are measures of response speed (MTS Speed; MTSRTC), accuracy (MTS Accuracy; MTSACC), and efficiency or thruput (MTS Thruput; MTSPUT). This test provides a measure of immediate visual memory and visual attention. This is what it looks like...

Remember the first square

Match it to the Original square.

Here is a link where you can practace this subtask...
You need to install PEBL.2 to run the MTS subtask.
Here's a link to the PEBL.2 download page...
http://pebl.sourceforge.net/download.html

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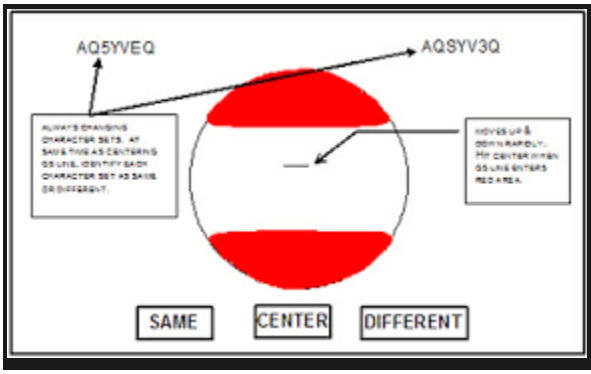
5. Divided Attention Test (DAT) DAT consists of two components: (a) a visual monitoring task only (DAT Indicator Alone), and (b) the simultaneous presentation of the visual monitoring task (DAT Indicator Dual) and the previously described Visual Sequence Comparison task (DAT Sequence Comparison). DAT Indicator Alone Task For the DAT Indicator Alone task, the respondent watches a cursor move vertically within a circle that is divided into central, upper, and lower sections. When the cursor crosses into the upper or lower sections, the respondent's task is to press a box marked "CENTER" with the light pen. DAT Indicator Alone Speed (DATIRTC) is the median amount of time the indicator spends in the upper and lower section of the circle prior to being centered by the respondent. DAT Indicator Alone Premature Responses (DATIPRE) represents number of premature centering responses. Premature responses are indicated if the respondent presses the "CENTER" key before the cursor moves into the upper or lower sections. DAT Indicator Dual Task The second DAT task is the Visual Sequence Comparison task, which is performed simultaneously with the visual monitoring task. Response speed is measured for both the monitoring task (DAT Indicator Dual Speed; DATDRTC) and the visual sequence comparison task (DAT Sequence Comparision Speed; DATSCRTC). Accuracy (DAT Sequence Comparision Accuracy; DATSCACC) and number of items correctly completed 7 per minute (DAT Sequence Comparison Thruput; DATSCPUT) are measured for the sequence comparison task in the dual condition. DAT Indicator Dual Premature

Responses (DATDPRE) represents the number of premature centering responses in the simultaneous condition. When the two tasks are presented simultaneously, the test assesses divided attention, working memory, and visual-motor and visual-perceptual speed. A comparison of performance under single and dual task conditions for sequence comparison, visual monitoring of the indicator, and premature responses yields information regarding the respondent's capacity for multitasking.
This is what it looks like...



PRO TIP:MOSTLY FOCUS ON DECIPHERING WEATHER THE LETTER/NUMBER STRING IS THE SAME OR DIFFERENT. THEN YOU WILL NOTICE THE LOCALIZER SHIFT INTO THE UPPER OR LOWER SECTIONS USEING YOU'RE PERIPHERAL VISION,

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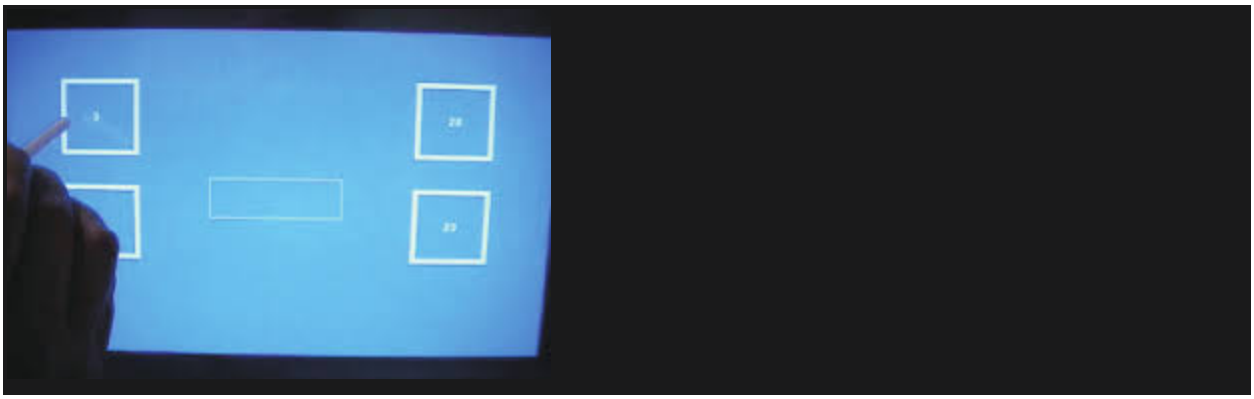
6. Pathfinder (PF) PF was adapted from the TMT. After viewing a number or letter displayed in the center of the screen, the respondent's task is to select one of the four quadrants containing the next character in a previously specified sequence. Three of the four characters are updated following each response. There are three different sequencing rules. PF Number requires number sequencing, PF Letter requires letter sequencing, and PF Combined requires sequencing an alternating series of numbers and letters. The performance measures for each task include: (a) the median response time to complete each sequential step (PF Number Speed, [PFNMRT]; PF Letter Speed, [PFLMRT]; and PF Combined Speed [PFCMRT]); (b) response accuracy (PF Number Accuracy, [PFNACC]; PF Letter Accuracy, [PFLACC]; and PF Combined Accuracy, [PFCACC]); (c) thruput (PF Number Thruput, [PFNPUT]; PF Letter Thruput, [PFLPUT]; PF Combined Thruput, [PFCPUT]); and (d) coordination measures indicating the respondent's proximity to the center of the target numbers and letters (PF Number Coordination, [PFNCOOR]; PF Letter Coordination, [PFLCOOR]; and PF Combined Coordination [PFCCOOR]). There is also a measure of the total time taken to complete each sequence (PFNTOT, PFLTOT, and PFCTOT). PF measures number and letter sequencing skills, the ability to systematically apply an organizing principle, immediate memory, motor coordination, visual scanning, and the ability to shift mental set.
This is what it looks like...



Pathfinder letter goes like this..A-B-C-D-E-F-G-H-I-J-K-L-M
Pathfinder number goes like this...1-2-3-4-5-6-7-8-9-10-11-12-13
Pathfinder Combined goes like this...1-A2-B-3-C-4-D-5-E-6-F-7-G-8-H-I-9-10-J-11-K-12-L-13
Here is 2 links where you can practace this subtask...(You will need to request it.)
PRO TIP:MAKE SURE TO TAP THE SCREEN WITH A GOOD AMOUNT OF FORCE!!! THE COGSCREEN-AE IS PREFORMED ON AN OLD ASS TOUCHPAD MOST OF THE TIME,AND SOMETIMES YOU WILL NEED TO RE-CLICK BECAUSE IT DOES NOT REGISTER!
https://docs.google.com/presentation/d/1hgdCzNGFgdx2zYUG-1jDln5G2zYkN2LxEgSCUKgkr2Y/edit#slide=id.g114b9b66744_0_66
https://docs.google.com/presentation/d/1TBn2WBBOjrXlkMqZyOu1i4u5si1qmIEWA-DlSY1WdD0/edit#slide=id.g114b9b66744_0_66
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7. SDC Delayed Recall Task SDC Delayed Recall Task presents a 20-minute delayed recall trial of the symbol-digit pairs. After the 20-minute delay period, nine SDC symbols are presented in random order. The respondent's task is to recall the corresponding digits. A measure of recall ac curacy (SDC Delayed Recall Accuracy; SDCDRACC) is the only score for this task. This task provides a measure of long-term visual paired-associate memory.
This is what it looks like...
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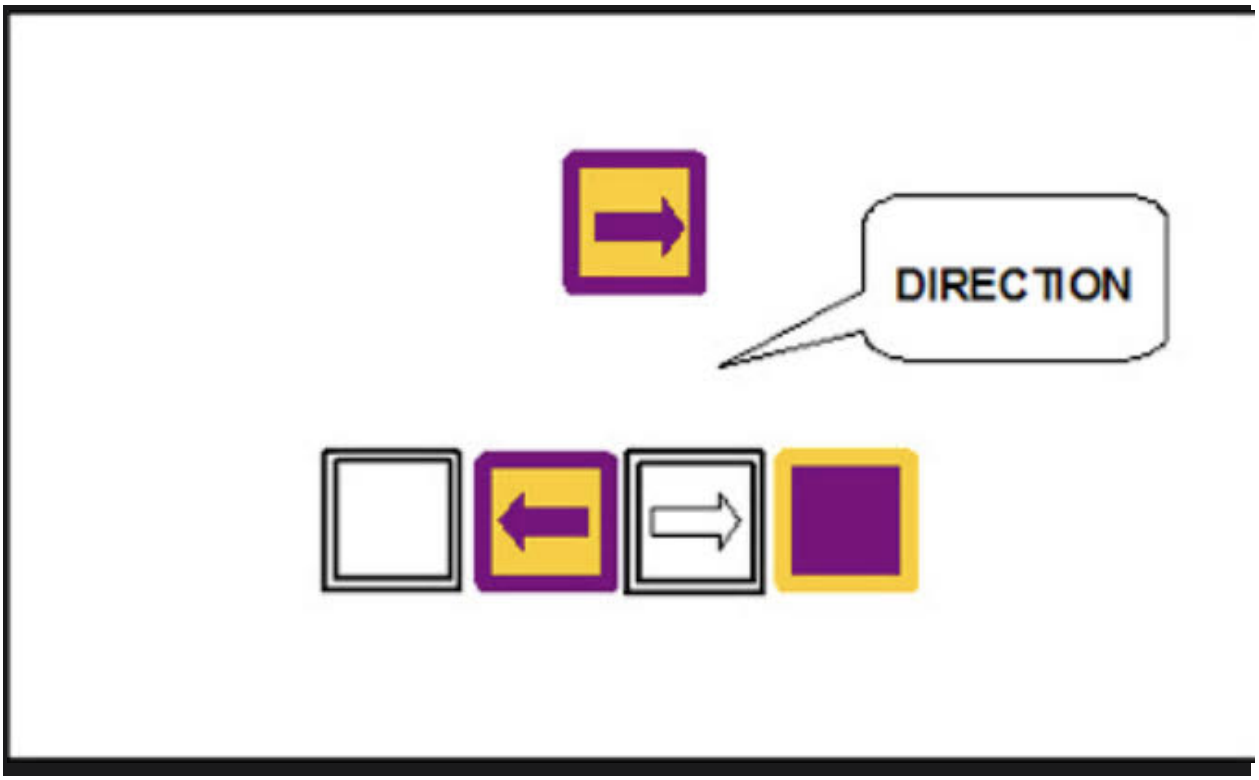
8. Shifting Attention Test (SAT) SAT requires respondents to alter their responses depending upon changing rules. SAT begins by training the respondent to select from among four response boxes, each of which contains an arrow, according to one of three easily learned rules: The first rule requires the respondent to select a box based on the color of its border; the second rule requires the respondent to select a box based on the direction of the arrow; and the third rule requires the respondent to match the color of the arrow. After learning the three response conditions, the respondent begins the fourth condition, SAT Instruction. In this condition, the respondent is presented with an instruction identifying the active rule before the presentation of each subsequent stimulus. In the fifth condition, SAT Discovery, the 8 respondent's task is to discover and then apply the active response rule, which changes after a variable number of correct responses. The respondent uses trial-and-error to ascertain the active rule. For all SAT tasks, measures of response accuracy, speed, and thruput are generated. In addition, for the SAT Discovery task, the subtest records the number of rule shifts completed (SAT Discovery Rule Shifts Completed; SATDIRUL),

failures to maintain set (SAT Discovery Failures to Maintain Set; SATDIFAI), and perseverative errors (SAT Discovery Perseverative Errors; SATDIPER). SAT is a test of concept formation (attribute identification), mental flexibility, sustained attention, deductive reasoning (rule-learning), vulnerability to response interference, working memory, application of novel rules, visual scanning, choice visual reaction time, and perseverative tendencies.
This is what it looks like...



Here is a link where you can practace this subtask...
https://www.psytoolkit.org/experiment-library/experiment_wcst.html
It is not the exact same test,but it is the same concept.
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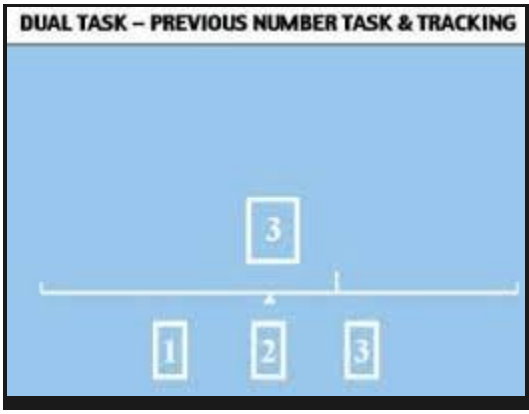
9. Dual Task Test (DTT) DTT has two tasks that are each presented independently and then simultaneously for a measure of divided attention and multitasking capability. DTT Tracking Alone Task DTT Tracking Alone is a visual-motor tracking test. This is the only CogScreen-AE subtest that requires the respondent to use the keyboard. The respondent's task is to maintain a cursor in the center of the screen by pressing the left and right arrow keys. Without the active tracking effort of the respondent, the cursor disappears off the screen (a "boundary hit"). Response measures for this task include the mean absolute tracking error (DTT Tracking Alone Error; DTTAABS) and the number of boundary hits (DTT Tracking Alone Boundary Hits; DTTAHIT). DTT Previous Number Alone Task The second task is a previous number exercise in which the respondent is shown a 1, 2, or 3 that is then replaced by either a 1, 2, or 3. The respondent's task is to recall the previous number shown and select that number (with the light pen), while simultaneously encoding the

current number for the next stimulus presentation. For this task, the performance measures are DTT Previous Number Alone Accuracy (DTTPAAC), DTT Previous Number Alone Speed (DTTPARTC), and DTT Previous Number Alone Thruput (DTTPAPUT). DTT Previous Number Dual Task DTT Previous Number Dual is the final task of DTT that simultaneously presents the tracking and previous number tasks. Measures are generated for both components of this task. DTT Tracking Dual Error (DTTDABS) and Tracking Dual Boundary Hits (DTTDHIT) are provided. DTT Previous Number Dual Accuracy (DTTPDAC), Speed (DTTPDRTC), and Thruput (DTTPDPUT) are also provided. Comparison of single- and dual-task performance can be used to determine the amount of deterioration resulting from multitasking. DTT measures sustained attention, visual-motor tracking, divided attention, and working memory.
This is what it looks like...



Its not too bad. Just rember to say the Pervious number every time!
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10. Manikin (MAN)Mental rotation task requiring respondent to identify the hand in which a rotated human figure is holding a flag.
This is what it looks like...

Here is a link where you can practace this subtask...
https://docs.google.com/presentation/d/12y_f5VKYCTybNFxOMwA_2rT_7e39vraZzpRZcRC5ekU/edit#slide=id.p

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11. Math. The Cogscreen-AE math Section is not what people make it out to be online. The problems are simple and at a 10th grade level. You can't use a pencil or paper... BUT IT DOESNT SAY YOU CANT USE A CALCULATOR! (You're Phone)
Here's a few examples...
You drive a car that gets 22mpg,You're 16gal tank is half way empty. How many miles can you go?
8X22=176 MILES
You work from 9:30-3:30 and 6:30-10:30.How many hours did you work?
6+4=10 HOURS WORKED

12.ASC Auditory sequence comparison is a task whare you hear two tones eg.BEEP BOOP BEEP and BOOP BEEP BEEP and you need to teel if the sounds are the same or different.
(Easy)

What does the Cogscreen-AE look like?

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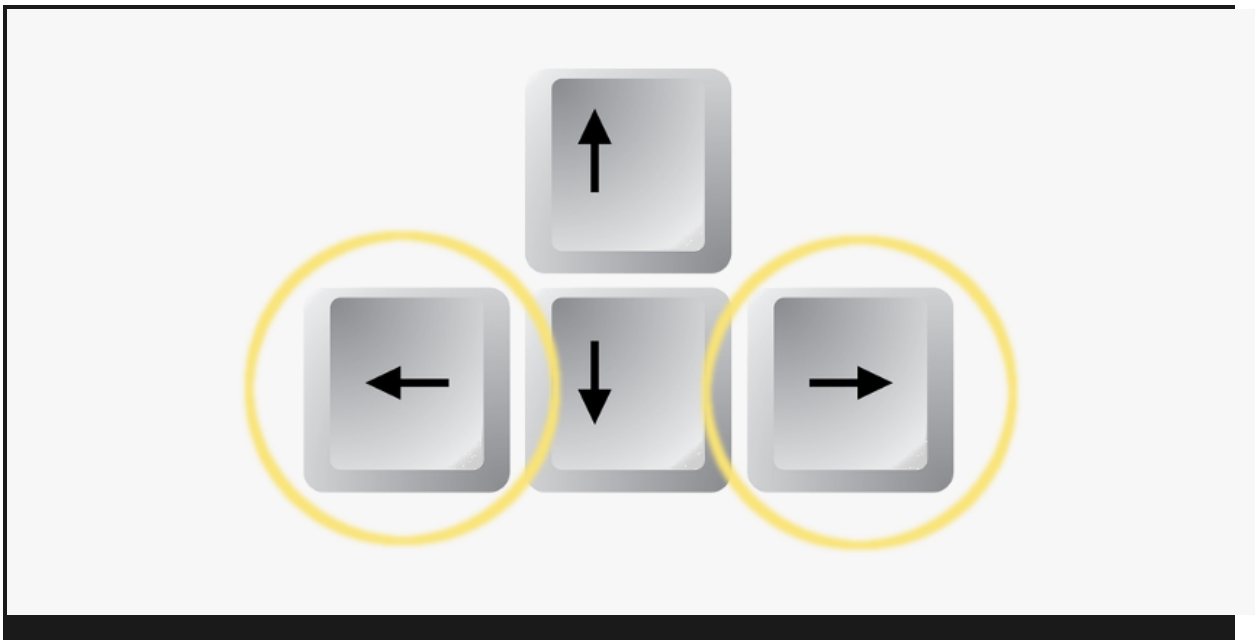
The cogscreen-AE is preformed on a 15 inch elo Accutouch LCD Touchscreen.

You will also use a "lightpen" or (apple pencil) to select your responces.

The cogscreen-AE also requires you to use only the left and right arrow keys on your keyboard.



Their are only two controls for the CogScreen-AE.The"lightpen",and the left and right arrow keys.

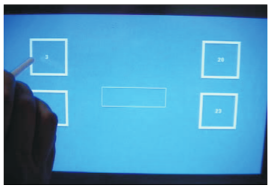
If you take the test,it will look exactly like this:

CogScreen

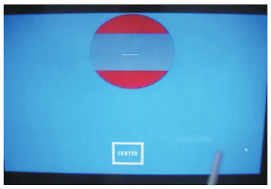
Divided Attention

Matching to the sample

CogScreen



Pathfinder



Visual Monitoring

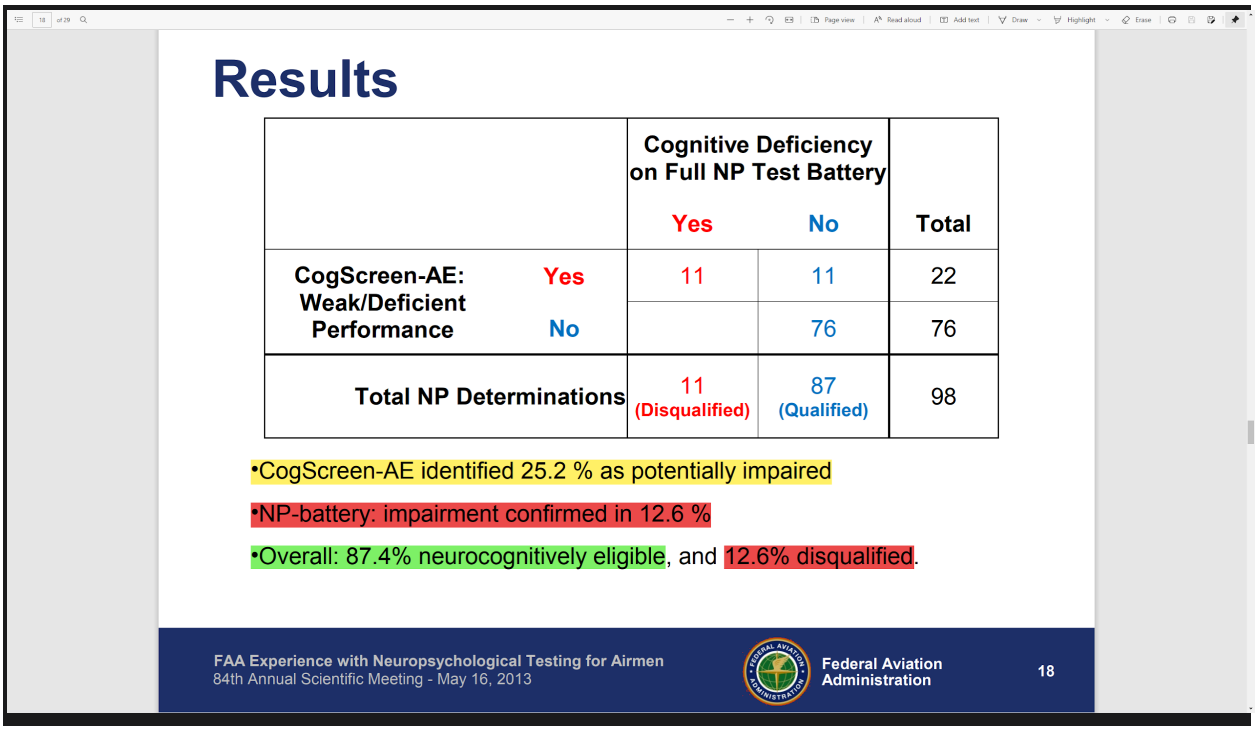
This information was found in the CogScreen-AE informational brochure.

Here is a link to that:https://delarosaresearch.com/uploads/CogscreenIB.pdf

The brochure is in spanish. So....yeah.

The pass rate for the Cogscreen-AE is 87.4%

Only 12.6% of people fail it + the supplemental battery.



Results

		Cognitive Deficiency on Full NP Test Battery		
		Yes	No	Total
CogScreen-AE: Weak/Deficient Performance	Yes	11	11	22
	No		76	76
Total NP Determinations		11 (Disqualified)	87 (Qualified)	98

•CogScreen-AE identified 25.2 % as potentially impaired

•NP-battery: impairment confirmed in 12.6 %

•Overall: 87.4% neurocognitively eligible, and 12.6% disqualified.

Results

Relationship of LRPV "probability for brain dysfunction" to determinations:

		Cognitive Deficiency on Full NP Test Battery		Fisher Test p-value
		Yes	No	
CogScreen-AE: Mean LRPV Score	High	0.9672	0.9341	0.72
	Low	0.5333	0.1741	0.58
Fisher Test p-value		0.02	>0.001	

** Other potential metrics: inadequate number of data points for analysis.

Results

For the period April 2010 – June 2012:

- Total individual airmen: 128
- Total meeting selection criteria: 98
  - Issued: 79
  - Denied: 19
    - Neurocognitive deficiencies 11
    - Other disqualification* 8

* Other medical condition; did not meet SSRI policy requirements due to type of psychiatric diagnosis, suicide history, inadequate treatment duration or stability, or unacceptable medication usage (multiple medications, use of unapproved SSRI, etc.)

Discussion

However, based on the findings of this study, over 75% of airmen tested by CogScreen-AE may be spared full NP battery testing!!!

Discussion

- **Interpretation: CogScreen-AE performed well as a screening test by identifying all airmen with significant cognitive deficiencies diagnosed by full NP battery testing.**
- The positive predictive value was only 50%, suggesting that half of individuals undergoing full NP battery testing on the basis of CogScreen-AE will not have deficits

Inderal. LRPV SCORE. **Logistic Regression Estimated Probability of Brain Dysfunction**. The following probability score (range 0 - 1.0) was generated using a model derived from a forward step-wise A higher LRPV score indicates a higher probability of brain dysfunction. The LRPV score is for classification estimates only.

An LRPV score of a CogScreen above 0.67 is abnormal, so your score of 0.9 + is not “good" and generally when one has an abnormal score such as that, the clinical psychologist will perform more specific neuropsychological testing on the areas of abnormality.

HOWEVER...PILOTS CAN STILL PASS WITH A LRPV SCORE OF 0.80 OR LOWER!!! The reason for this is because the rest of the CogScreen-AE report must look ok-ish. We also have proof of this.Please Reference the “CogScreen-AE PASS RATE” post on r/CogScreen. Pretty much just don’t do terrible on it and you’ll do just fine. Everything on this sub is a FACT everything I post on this sub is confirmed by John Milanovich Ph.D to clear up any questions or confusion.